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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,625	06/30/2003	Wipul Jayasekara	SJO920000096US2	1372

7590

11/23/2005

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EXAMINER

KIM, PAUL D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/611,625

Applicant(s)

JAYASEKARA, WIPUL

Examiner

Paul D. Kim

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-27, 29, 30 and 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-27, 29, 30 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This office action is a response to the restriction requirement filed on 10/3/2005.

Response to the Election of Species

1. Applicant's election without traverse of Species B, claims 25-27, 29, 30 and 32, in the reply filed on 10/3/2005 is acknowledged.
2. Claims 28, 31 and 33-46 are cancelled in the reply filed on 10/3/2005.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 25-27 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Komoru et al. (US PAT. 6,327,107).

Komoru et al. teach a process of making a spin tunnel magnetoresistance effect type sensor comprising steps of: forming a MTJ stack (20) with an active region disposed at the ABS and having two opposite sides each disposed generally orthogonally to the ABS as shown in Fig. 5, including the unordered steps of: forming an antiferromagnetic (AFM) layer (4), forming a pinned layer (2) of ferromagnetic (FM)

material in contact with the AFM layer, forming a free layer (3) of FM material, forming a tunnel junction layer (1) of electrically nonconductive material disposed between the pinned layer and the free layer, and removing all material outside of the active region from the AFM layer, the pinned layer, and the tunnel junction layer to define the two opposite sides of the active region as shown in Fig. 5; and forming a longitudinal bias layer (7) outside of the active region in contact with the free layer for biasing the magnetic moment of the free layer in substantially a predetermined direction in the absence of an external magnetic field (see also col. 3, line 39 to col. 9, line 2).

Re. Claim 26: An insulating layer (6) of electrically nonconductive material on and in contact with the free layer outside of the active region and in abutting contact with the two opposite sides of the active region as shown in Fig. 5.

Re. Claims 27 and 30: The longitudinal bias layer is disposed without contacting the active region as shown in Fig. 5.

5. Claims 25-27, 29, 30 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Carey et al. (US PAT. 6,836,392).

Carey et al. teach a process of making a magnetoresistive sensor comprising steps of: forming a MTJ stack with an active region disposed at the ABS and having two opposite sides each disposed generally orthogonally to the ABS as shown in Fig. 14, including the unordered steps of: forming an antiferromagnetic (AFM) layer (152), forming a pinned layer (153) of ferromagnetic (FM) material in contact with the AFM layer, forming a free layer (155) of FM material, forming a tunnel junction layer (154) of electrically nonconductive material disposed between the pinned layer and the free

layer, and removing all material outside of the active region from the AFM layer, the pinned layer, and the tunnel junction layer to define the two opposite sides of the active region as shown in Fig. 14; and forming a longitudinal bias layer (161) outside of the active region in contact with the free layer for biasing the magnetic moment of the free layer in substantially a predetermined direction in the absence of an external magnetic field (see also col. 11, line 29 to col. 12, line 19).

Re. Claim 26: An insulating layer (151) of electrically nonconductive material on and in contact with the free layer outside of the active region and in abutting contact with the two opposite sides of the active region as shown in Fig. 14.

Re. Claims 27 and 30: The longitudinal bias layer is disposed without contacting the active region as shown in Fig. 14.

Re. Claims 29 and 32: The longitudinal bias layer is made of coercive ferrite material (equivalent with an antiferromagnetic material).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D. Kim whose telephone number is 571-272-4565. The examiner can normally be reached on Monday-Friday between 7:00 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul D Kim
Examiner
Art Unit 3729